

IN THE CLAIMS

1. (Currently Amended) A medical pad, comprising:
a fluid containing layer for containing a thermal exchange fluid circulated therethrough,
wherein said medical pad is operable for thermal exchange with a patient through a first side of
said fluid containing layer; and,
an external electrode interconnected to said fluid containing layer on said first side
thereof, said external electrode being adapted to transcutaneously receive electrical energy from
a patient.

2. (Original) A medical pad as recited in Claim 1, further comprising:
an electrical connector electrically connected to said external electrode and extending
through said fluid containing layer to a second side thereof.

3. (Original) A medical pad as recited in Claim 2, said electrical connector
comprising:
a port for electrical interconnection to a signal cable.

4. (Original) A medical pad as recited in Claim 2, wherein said electrical
connector extends through said second side of said fluid containing layer at an exit location
within a predetermined area having open-access when said medical pad is positioned on a patient
in a predetermined manner.

5. (Original) A medical pad as recited in Claim 4, wherein said external electrode
is provided so that a portion thereof is disposed in opposing relation to said exit location.

6. (Original) A medical pad as recited in Claims 2, further comprising:
an insulator surrounding said electrical connector through said fluid containing layer.

7. (Original) A medical pad as recited in Claim 1, wherein said electrode is one of a group consisting of:

- an electrosurgical return electrode;
- a defibrillation electrode;
- an electrocardiogram electrode; and,
- a pacing electrode.

8. (Original) A medical pad as recited in Claim 1, further comprising:

a plurality of different electrodes interconnected to said fluid circulation layer on said first side thereof at locations selected in relation to corresponding functions thereof.

9. (Original) A medical pad as recited in Claim 1, further comprising:

an adhesive surface, extending over at least a portion of said first side of said fluid circulation layer, for contacting a patient.

10. (Original) A medical pad as recited in Claim 9, wherein said adhesive surface substantially covers said external electrode.

11. (Original) A medical pad as recited in Claim 9, further comprising:

a conformable layer disposed on said first side of said fluid containing layer, said conformable layer being thermally and electrically conductive, and said conformable layer defining said adhesive surface.

12. (Original) A medical pad as recited in Claim 11, a conformable layer comprising:

a first material suspended in a matrix defined by a second material.

13. (Original) A medical pad as recited in Claim 12, wherein said first material comprises a liquid and said second material comprises a polymer.

14. (Original) A medical as recited in Claim 13, wherein said liquid further comprises an electrolyte.

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15. (Original) A medical pad as recited in Claim 11, wherein said conformable layer comprises a hydrogel material.

16. (Original) A medical pad as recited in Claim 11, wherein said external electrode is located between said conformable layer and said fluid circulation layer.

17. (Original) A medical pad as recited in Claim 16, wherein said electrode is of a plate-like configuration.

18. (Original) A medical pad as recited in Claim 16, wherein said conformable layer covers, surrounds and extends laterally away from said external electrode.

19. (Currently Amended) A medical pad comprising:

a fluid containing layer for containing a thermal exchange fluid circulated therethrough, wherein said medical pad is operable for thermal exchange with a patient through a first side of said fluid containing layer;

a conformable layer disposed on said first side of said fluid containing layer, said conformable layer being thermally and electrically conductive and having an adhesive surface for engaging a patient; and,

an external electrode, captured-located between said fluid containing layer and at least a portion of said conformable layer, for receiving electrical energy from a patient through said conformable layer, said external electrode being adapted to transcutaneously receive electrical energy from a patient.

20. (Original) A medical pad as recited in Claim 19, wherein said conformable layer covers, surrounds and extends laterally away from said external electrode.

21. (Original) A medical pad as recited in Claim 20, wherein said external electrode is one of a group consisting of:

- an electrosurgical return electrode;
- a defibrillation electrode;
- an electrocardiogram electrode; and,
- a pacing electrode.

22. (Original) A medical pad as recited in Claim 21, wherein said conformable layer comprises a hydrogel material.

23. (Original) A medical pad as recited in Claim 22, wherein said hydrogel material includes an electrolyte.

24. (Original) A medical pad as recited in Claim 23, wherein said electrolyte is selected from a group consisting of:

magnesium chloride;

sodium chloride;

ammonium acetate;

magnesium acetate; and,

magnesium sulfate.

25. (Original) A medical pad as recited in Claim 19, further comprising:

an electrical connector electrically connected to said external electrode and extending through said fluid containing layer to an exposed second side thereof; and,

an insulator surrounding said electrical connector through said fluid containing layer.

26. (Original) A medical pad as recited in Claim 25, said electrical connector comprising:

a port for electrical connection to a signal cable.

27. (Currently Amended) A method for use in a medical procedure, comprising: positioning a medical pad on a patient, said medical pad having a fluid containing layer for containing a fluid circulated therethrough to achieve thermal exchange with a patient through a first side of said fluid containing layer; and,

locating at least one external electrode relative to said patient contemporaneous with said positioning step, said at least one external electrode being interconnected to said first side of said fluid containing layer; and,

transcutaneously receiving electrical energy at said at least one external electrode from said patient.

28. (Currently Amended) A method as recited in Claim 27, further comprising:

~~transcutaneously receiving electrical energy at said at least one external electrode from said patient wherein said electrical energy is transcutaneously received without passage through a thermal exchange fluid circulated through said fluid containing layer.~~

29. (Previously Added) A method as recited in Claim 27, wherein said positioning step includes:

adhering said medical pad to said patient.

30. (Previously Added) A method as recited in Claim 29, wherein said medical pad includes an adhesive surface that extends over and about at least a portion of said at least one external electrode.

31. (Previously Added) A method as recited in Claim 30, wherein said adhesive surface is defined by a conformable layer that is thermally and electrically conductive.

32. (Previously Added) A method as recited in Claim 27, wherein an electrical connector is electrically connected to said at least one external electrode and extends through the fluid containing layer to a second side thereof, and wherein the method further includes:

interconnecting an electrical cable with said electrical connector on said second side.

33. (Previously Added) A method as recited in Claim 32, wherein said interconnecting step is completed after said positioning step.

34. (Previously Added) A method as recited in Claim 27, wherein said at least one electrode is one of a group consisting of:

- an electrosurgical return electrode;
- a defibrillation electrode;
- an electrocardiogram electrode; and,
- a pacing electrode.

35. (New) A method as recited in Claim 1, wherein said external electrode is located to transcutaneously receive electrical energy from a patient without passage of such electrical energy through a thermal exchange fluid circulated through said fluid containing layer.

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36. (New) A method as recited in Claim 35, wherein said external electrode is located outside of said fluid containing layer.

37. (New) A method as recited in Claim 19, wherein said external electrode is located to transcutaneously receive electrical energy from a patient without passage of such electrical energy through a thermal exchange fluid circulated through said fluid containing layer.

38. (New) A method as recited in Claim 37, wherein said external electrode is located outside of said fluid containing layer.

39. (New) A method as recited in Claim 28, wherein said external electrode is located outside of said fluid containing layer.

40. (New) A method as recited in Claim 31, wherein said electrical energy is transcutaneously received through said conformable layer from a patient region that extends beyond a footprint of said external electrode.